Energy sector in Mongolia

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Mongolia-Socioeconomic Characteristics

- 1.5 million sq. km-17th largest country
- diverse geography but land locked
- population 2.4 million-57% urban, 43% rural
- GDP is $1 billion and $450 per capita
- exports-copper, cashmere, gold
- Trade growing, inflation slowing, revenues are increasing
Mongolia-Socioeconomic Characteristics

- Small and medium sized businesses increasing throughout Mongolia
- Private sector participation increased from 0% in 1990 to 70% of GDP now
- External assistance, close cooperation important for Mongolia
Energy supply-Coal

• Inferred reserve 150 billion tons
• Proven reserves over 20 billion tons
• All reserves located in 240 deposits, 12 major coal basins
• 20% cooking and 80% lignite and steam coal
• 25% confirmed by geological survey
Energy supply - Coal

- 32 coal mines operating
- 13 joint stock, 19 private
- 3 mines produce 4.5 million tons/year
- 29 small mines with capacity 6-700000 tons
- demand 5 million tons/year
## Energy supply - Coal

### Table: Coal Balance, 1998-2002 (‘000 tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Stocks</th>
<th>Imports</th>
<th>Production</th>
<th>Total Supply</th>
<th>Heat &amp; Power</th>
<th>Other End Users</th>
<th>Exports</th>
<th>Stocks</th>
<th>Total Demand</th>
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<tbody>
<tr>
<td>1998</td>
<td>87</td>
<td>38</td>
<td>5057</td>
<td>5182</td>
<td>4193</td>
<td>793</td>
<td>3</td>
<td>193</td>
<td>5182</td>
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<tr>
<td>1999</td>
<td>193</td>
<td>30</td>
<td>4964</td>
<td>5187</td>
<td>4127</td>
<td>890</td>
<td></td>
<td>170</td>
<td>5187</td>
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<tr>
<td>2000</td>
<td>170</td>
<td>43</td>
<td>5185</td>
<td>5398</td>
<td>4449</td>
<td>763</td>
<td></td>
<td>186</td>
<td>5398</td>
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<tr>
<td>2001</td>
<td>186</td>
<td>10</td>
<td>5141</td>
<td>5189</td>
<td>4324</td>
<td>865</td>
<td></td>
<td>148</td>
<td>5189</td>
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<tr>
<td>2002</td>
<td>148</td>
<td>0.1</td>
<td>5544.4</td>
<td>5535.3</td>
<td>4723.2</td>
<td>812.1</td>
<td></td>
<td>157.2</td>
<td>5535.3</td>
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</table>
Energy supply-Liquid fuels

- Petroleum products 100% import from Russia
- gasoline 52%, diesel 34%, 14% other-fuel oil, jet, lube
- LPG imports by canisters
- other gas supply options are pursuing-CNG for vehicles and LPG for household
Energy supply-Liquid fuels

- Oil production 1000 barrels per day
- estimated reserve 300-500 million barrels
- expected national oil reserve 5-8 billion barrels
Other energy resources

- **Hydro**
- Mongolia has significant hydropower potential
- 3.5 MW-existing, have been starting projects with capacity of 19 MW, identified projects with capacity 6-220MW
Other energy resources

• **Solar**

• 71% of land receives insulation 5.5-6 kWh/sq.m with 2900-3000 sunny hours/ and 18%-4.5-5.5 kWh/sq.m with 2600-2900 hours

• 100,000 solar ger-program has established

• Solar energy utilization study carried out in 2000
Other energy resources

- **Wind**
  - Wind resource suitable to use in 70% of country
  - Wind regimes of 150-200 W/sq.m and duration 4000-4500 hours per year

- **Geothermal**
  - 42 small hot springs surveyed
Other energy resources

- **Electricity**
- 3 centralized systems, 5 isolated systems, import from Russia
- Installed capacity 879 MW of which 823 from coal fired PP
Other energy resources

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
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<tbody>
<tr>
<td>1</td>
<td>Installed capacity (MW)</td>
<td>44</td>
<td>855</td>
<td>875</td>
<td>879</td>
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<td>7</td>
<td>Energy Imports GW/h)</td>
<td>203</td>
<td>181</td>
<td>196</td>
<td>167</td>
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<td>8</td>
<td>Energy Export (GW/h)</td>
<td>59</td>
<td>25</td>
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<td>15</td>
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<td>12</td>
<td>Net Sales of electricity (GW/h)</td>
<td>1867</td>
<td>1910</td>
<td>1948</td>
<td>2031</td>
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<tr>
<td>13</td>
<td>Peak demand (MW)</td>
<td>477</td>
<td>488</td>
<td>506</td>
<td>513</td>
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<td>14</td>
<td>Gross gen. of heating (T.cal)</td>
<td>6761</td>
<td>6885</td>
<td>6597</td>
<td>6867</td>
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<tr>
<td>15</td>
<td>Total sales of heating (T.cal)</td>
<td>6686</td>
<td>6747</td>
<td>6537</td>
<td>6772</td>
</tr>
</tbody>
</table>
Other energy resources

- **New energy sources**
- Fuel cell
- Transmission lines and pipelines between Russia and China
- Energy efficiency - reduce the existing losses/30% in electricity, 40% in heating/
- Saved energy from reduction of consumption and energy efficiency
Energy policy

- Restructuring
- increase private sector participation
- commercialization of energy enterprises
- implement privatization actions
Government actions in Energy sector

- To improve existing system
- Improved major coal fired PP and coal mines
- Upgraded diesel generators in 5 province centers and 167 villages
- Started implementation of program on utilization renewable energy
Government actions in Energy sector

- Adopted new Energy Law to set up legal bases for restructuring
- Established the Energy Regulatory Agency to great regulatory mechanism
- Restructuring of energy enterprises to start commercialization and privatization
- Institutions MOI-FAEA, ERA
Energy demand forecast

- Average growth 2.9% up to 2020
- It assumed by improved efficiency of power system, energy savings result, energy efficiency on the demand side and investment that expected approximately $870 million
Future activities in energy sector

- Resolve inter-company arrears to increase private sector participation
- Implement “Mongolia Integrated Power System” program which adopted in 2002
- Implement “Mongolia Sustainable Energy Sector Development Strategy” adopted in 2002
Mongolia Integrated Power System

- Develop reliable and affordable energy supply
- Contribute to inter-regional development
- Improve energy security for long term
Mongolia Sustainable Energy Sector Development Strategy

- Financial sustainability
- Restructuring
- Capacity building
- Energy access and affordability
- Energy conservation
Moreover Mongolian energy sector should be developed within a regional energy context while at the same time taking advantage of new technologies, improve energy security and sources of energy that might further promote economic efficiency and environmental sustainability.
THANKS